

FAMILY NOTERIDAE

<i>Notomicrus nanulus</i> (LeConte)	? <i>Suphisellus bicolor</i> (Say)
<i>Suphis inflatus</i> (LeConte)	? <i>Suphisellus gibbulus</i> (Aube)
<i>Hydrocanthus iricolor</i> (Say)	<i>Suphisellus puncticollis</i> (Crotch)
<i>Hydrocanthus oblongus</i> Sharp	? <i>Suphisellus punctipennis</i> (Sharp)

FAMILY GYRINIDAE

<i>Dineutus assimilis</i> Kirby	<i>Gyrinus analis</i> Say
<i>Dineutus carolinus</i> LeConte	<i>Gyrinus elevatus</i> LeConte
<i>Dineutus ciliatus</i> (Forsberg)	<i>Gyrinus marginellus</i> Fall
<i>Dineutus discolor</i> Aube	<i>Gyrinus pachysomus</i> Fall
<i>Dineutus emarginatus</i> (Say)	<i>Gyrinus rockinghamensis</i> LeConte
<i>Dineutus horni</i> Roberts	<i>Gyrinus woodruffi</i> Fall
<i>Dineutus nigrior</i> Roberts	<i>Gyretes iricolor</i> Young
<i>Dineutus serrulatus</i> LeConte	? <i>Gyretes sinuatus</i> LeConte

LITERATURE CITED

- LODING, H. P. 1945. Catalogue of the beetles of Alabama. Geol. Surv. Ala. Monog. 11.
- YOUNG, F. N. 1954. The water beetles of Florida. Univ. of Florida Studies, Biological Science Series 5(1): ix + 238 p.

MASS EMERGENCE OF *PRIONUS EMARGINATUS*
(SAY) (COLEOPTERA: CERAMBYCIDAE)

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On the morning of July 5, 1977 we observed a mass emergence of adult cerambycids, *Prionus emarginatus* (Say), following a heavy night rain (0.8 cm) at the Great Sand Dunes National Monument (San Luis Valley) in southern Colorado. Hundreds of beetles emerged in a flat area of sand and sparse vegetation just south of the main dunes. The vegetation of this area is characterized by sparse growth of a scurf pea, *Psoralea lanceolata* Pursh; blowout grass, *Redfieldia flexuosa* (Thurb.) Vasey; and indian ricegrass, *Oryzopsis hymenoides* (Roem. and Schult.) Rickler. The predominant species was the ricegrass.

Male and female beetles were easily distinguished by antennal dimorphism: pectinate in males, serrate in females. Many mating pairs were observed. One male located about 3 m away from a female moved toward her in a sinuous manner with legs and antennae extended, reached her and climbed onto her back, and mated. Apparently the male uses his elaborate antennae to locate the female by using chemical cues, as reported for other cerambycid species (Linsley 1959). Although both sexes produce sounds when disturbed, no sounds were heard during pair formation or copulation.

Many females were observed digging oviposition holes in the sand. The long ovipositor was extended and a small clutch of eggs deposited. The ovipositor of one female pulled from her oviposition hole was extended to half the length of her body. Holes were not completely filled by the female after oviposition and were easily found. Six clutches of eggs were excavated. Mean clutch depth was 6.4 cm (range 5-8 cm) and mean clutch size was 3.8 eggs (range 2-6). Each female apparently lays more than one clutch; one female which had laid a clutch of 4 eggs was dissected, and 37 eggs remained in her abdomen.

Eggs are reported to hatch in 30 days and the larvae to feed on the roots of grasses. The larvae require three years to mature and then pupate in an earthen cell (Craighead 1923). At the Great Sand Dunes National Monument the larvae probably feed on the roots of indian ricegrass.

Few live beetles remained in the area the day after emergence, although many dead and dying beetles were present on the sand surface. Many had been preyed upon. Their abdomens and thoraces were often missing, and many had their mouthparts still moving.

The San Luis Valley is the driest area in Colorado, with an average of 16.5 cm of precipitation per year (Armstrong 1972), and most precipitation results from occasional afternoon summer thunderstorms. The mass emergence of *P. emarginatus* was apparently triggered by the heavy rain of the previous night. Up to 100% emergence of individuals has been reported for certain cerambycid species after heavy rains (Linsley 1959).

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REFERENCES

- ARMSTRONG, D. M. 1972. Distribution of mammals in Colorado. University of Kansas Printing Service, Lawrence, Kansas.
CRAIGHEAD, F. C. 1923. North American cerambycid larvae. Canada Department of Agriculture Bulletin no. 27.
LINSLEY, E. G. 1959. Ecology of Cerambycidae. Ann. Rev. Ent. 4:99-138.

